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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,361	02/06/2004	Hiroaki Kubo	JP920030009US1	6820
25259 7590 03/30/2007 IBM CORPORATION 3039 CORNWALLIS RD. DEPT. T81 / B503, PO BOX 12195 RESEARCH TRIANGLE PARK, NC 27709			EXAMINER BAYARD, EMMANUEL	
			ART UNIT	PAPER NUMBER
			2611	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/30/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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RSWIPLAW@us.ibm.com

## Office Action Summary

Application No.

10/773,361

Applicant(s)

KUBO ET AL.

Examiner

Emmanuel Bayard

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The abstract of the disclosure is objected to because the abstract is too short.

Correction is required. See MPEP § 608.01(b).

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Whinnett et al U.S. Patent No 6,317,411 B1 in view of Seshadri et al U.S. Pub No 2002/0090035 A1.

As per claims 1 and 7, Whinnett et al teaches a communication method, comprising the steps of: generating, in correspondence with data to be transmitted, codes based on relative values of amplitude intensities of a first wave with a first polarization and a second wave with a second polarization, wherein the first and second polarizations are different (see figs.3, 5, 9 elements S1S2 and S2\*S1\* and col.2, lines 65-67 and col.5, lines 10-15); modulating the first and second polarized waves according to the codes (see col.2, lines 5-10 and col.3, lines 15-18 and col.5, lines 50-55); transmitting the first and second polarized waves (see figs. 3, 5, 9 elements 34, 36, 100, 102); receiving the transmitted first and second polarized waves (see figs. 3, 7 elements 38, 120 and col.3, lines 23-25 and col.6, lines 45-49); detecting the magnitude

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of the first and second received signals is the same as the claimed (detecting amplitude intensities of the first and second polarized waves) (see figs. 1-4 elements 42, 66 and col.2, lines 26-28, 50-60 and col.3, lines 25-28); decoding the detected amplitude intensities to obtain the codes (see figs. 1, 3 and 7 elements 44 and 134).

However Whinnett does not teach reproducing the transmitted data from the obtained codes.

Seshadri et al teaches reproducing the transmitted data from the obtained codes (see abstract and page 1 [0008] and page [0034-0036]).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Seshadri et al into Whinnett as to accurately decode the super-orthogonal spaced time trellis codes having enhance coding gains and improved rates as taught by Seshadri (see abstract).

As per claim 2, Whinnett and Seshadri et al a combination would teach wherein the codes are determined based on relative values which are ratios of the amplitude intensities of the first and second polarized waves to a difference between the amplitude intensities of the first and second polarized waves as to accurately decode the super-orthogonal spaced time trellis codes having enhance coding gains and improved rates.

As per claim 3, Seshadri et al teaches, wherein said modulating step includes a step of performing QPSK is functionally equivalent to the claimed (phase shift keying) on the first and second polarized waves before transmitting the first and second polarized waves (see page 5 [0070-0073]). Furthermore implementing such teaching into Whinnett would have obvious to one skill in the art as to indicate the state of each

trellis code associated with space time block code as taught by Seshadri (see page 5 [0071]).

As per claim 4, Whinnett teaches wherein the first polarized wave and the second polarized wave are orthogonal (see col.1, lines 38-40 and col.4, lines 30-35).

As per claim 6, Whinnett teaches a communication apparatus comprising: a receiver which receives a first polarized wave and a second polarized wave (see figs. 3, 7 elements 38, 120 and col.3, lines 23-25 and col.6, lines 45-49; detecting the magnitude of the first and second received signals is the same as the claimed (a relative amplitude detector which detects relative values of amplitude intensities of the first and second polarized waves) (see figs. 1-4 elements 42, 66 and col.2, lines 26-28, 50-60 and col.3, lines 25-28) received by said receiver; a decoding section which decodes to obtain codes from the relative values detected by said relative amplitude detector (see figs. 1, 3 and 7 elements 44 and 134).

However Whinnett does not teach a reproduction section which reproduces the transmitted data from the obtained codes by decoding performed by said decoding section.

Seshadri et al teaches reproduction section which reproduces the transmitted data from the obtained codes (see abstract and page 1 [0008] and page [0034-0036]) obtained by decoding performed by said decoding section.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Seshadri et al into Whinnett as to accurately decode the super-orthogonal spaced time trellis codes having enhance coding gains and improved rates as taught by

Seshadri (see abstract).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 5 is rejected under 35 U.S.C. 102(b) as being anticipated by Whinnett et al U.S.

Patent No 6,317,411 B1.

As per claim 5, Whinnett et al teaches communication apparatus, comprising: a transmitter which transmits a first wave having a first polarization and a second wave having a second polarization, wherein the first polarization and the second polarization are different (see figs. 3, 5, 9 elements 34, 36, 100, 102); a code data assigner which assigns codes corresponding to data to be transmitted, based on relative values of amplitude intensities of the first and second polarized waves (see figs.3, 5, 9 elements 20,60, S1S2 and S2\*S1\* and col.2, lines 65-67 and col.5, lines 10-15); and a modulator which modulates the first and second polarized waves according to amplitudes corresponding to the codes assigned by said code data assigner(see col.2, lines 5-10 and col.3,lines 15-18 and col.5, lines 50-55).

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Schilling U.S. Patent No 6,466,610 B1 teaches spread spectrum space diversity.

Calderbank et al U.S. Pub No 2005/0201481 A1 teaches a method and apparatus for data transmission using multiple transmit antennas.

Hammons Jr et al U.S. Pub No 2004/0146014 A1 teaches a method and constructions for space-time codes.

Onggosanusi et al U.S. Patent O 7,133,459 B2 teaches a space time transmit diversity.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571 272 2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/23/07

Emmanuel Bayard  
Primary Examiner  
Art Unit 2611

**EMMANUEL BAYARD**  
**PRIMARY EXAMINER**

